CLAIMS

1. A system for servicing household appliances, the system including:

    A. one or more monitoring subsystems associated with the one or more appliances, each monitoring subsystem

        i.   monitoring the operations of a given appliance and retaining as functional data information relating to the functioning of the appliance,

        ii.   analyzing the functional data and determining if the appliance is operating properly or in need of attention, and

        iii.   transmitting a message indicating that the appliance requires attention, and

    B. a center for receiving the messages sent by the monitoring subsystems, the center contacting the users of the associated appliances to inform them that the appliances require attention.

2. The system of claim 1 wherein each monitoring subsystem

    a. determines if the associated appliance requires immediate attention,

    b. produces alarm messages when immediate attention is required, and

    c. produces warning messages when other than immediate attention is required.

3. The system of claim 1 wherein

    a. the monitoring subsystem sends the functional data or aggregations of the data to the center; and

    b. the center processes the data to determine if one or more of the appliances requires service.

4. The system of claim 3 wherein the center

        i.   determines from the received data or messages what attention is required for a given appliance,

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ii. determines, if service is required, whether the user of the appliance has a service contract for the appliance, and

iii. arranges service in accordance with the provisions of the contract, if the user has a service contract.

5. The system of claim 4 wherein the center further

iv. determines, if preventive maintenance is required, whether the maintenance is performed by the user or an appliance service person,

v. determines, if the maintenance is to be performed by a service person, whether the user has a maintenance contract for the appliance and arranges maintenance in accordance with the provisions of the contract, and

vi. notifies the user what preventive maintenance is to be done if the maintenance is to be performed by the user.

6. The system of claim 2 further including

C. a network over which the monitoring subsystems transmit the messages;

D. a gateway connected to the network to receive the messages, the gateway

a. transmitting alarm messages to the center as soon as the messages are received, and

b. retaining warning messages and transmitting the retained messages at predetermined times or when other transmissions are made to the center.

7. The system of claim 6 wherein

i. each monitoring subsystem aggregates the functional data over time into statistical data that relates to the operations of the associated appliance,

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j. the gateway polls each monitoring subsystem to request the statistical data.

k. the gateway transmits the statistical data to the center at predetermined times or when other transmissions are made to the center, and

l. the center includes the statistical data in an analysis of the patterns of use and the operations of the appliances.

8. The system of claim 7 wherein the center

i. determines if a given appliance should be replaced based on the associated patterns of use,

ii. recommends at appropriate times the replacement of the appliance with one or more appliance models that fit the associated pattern of use,

iii. determines if the user of the given appliance has a replacement contract, and if so, arranges for the delivery and installation of the replacement appliance model selected by the user.

9. The system of claim 1 wherein one or more of the monitoring subsystems are adapters that monitor and analyze the energy consumption of the associated appliances.

10. The system of claim 1 wherein one or more of the monitoring subsystems monitor the settings of the associated appliances, and the states of various components of the appliances.

11. The system of claim 10 wherein the monitoring subsystems aggregate the functional data into historical data, and use the historical data in the analysis of the operations of the appliances.

12. A method for servicing household appliances, the method including the steps of:

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2   A. monitoring the operations of one or more appliances and retaining

3   as functional data information relating to the functioning of the

4   respective appliances;

5   B. analyzing the functional data at the appliances and determining if

6   the respective appliances are operating properly or in need of

7   attention;

8   C. transmitting to a remote center one or more messages indicating

9   that the appliance requires attention; and

10   D. from the center contacting the users of the associated appliances to

11   inform them that the associated appliances require attention.

1   13. The method of claim 12 further including the steps of

2   a. transmitting data from the appliances to the center,

3   b. analyzing the data from all of the appliances in the household to determine if

4   one or more appliances requires service.

1   14. The method of claim 13 wherein

2   d. the step of analyzing at the appliance further includes determining if a

3   given appliance requires immediate attention, and

4   e. the step of transmitting one or more messages further includes producing

5   alarm messages when immediate attention is required and producing

6   warning messages when other than immediate attention is required.

1   15. The method of claim 14 wherein the step of contacting includes

2   iv. determining from the received messages or an analysis of the

3   data what attention is required for a given appliance,

4   v. determining, if service is required, whether the user of the

5   appliance has a service contract for the appliance, and

6   vi. arranging service in accordance with the provisions of the

7   contract, if the user has a service contract.

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16. The method of claim 15 wherein the step of contacting further includes

      vii.   determining, if preventive maintenance is required, whether the maintenance is performed by the user or an appliance service person,

      viii.   determining, if the maintenance is to be performed by a service person, whether the user has a maintenance contract for the appliance,

      ix.   arranging maintenance in accordance with the provisions of the contract, and

      x.   notifying the user what preventive maintenance is to be done if the maintenance is to be performed by the user.

17. The method of claim 13 wherein the steps of transmitting include

    a. transmitting the messages and data over a network to a gateway,

    b. transmitting alarm messages and associated data from the gateway to the center as soon as the messages are received by the gateway, and

    c. retaining warning messages and data at the gateway and transmitting the retained messages at predetermined times or when other transmissions are made to the center.

18. The method of claim 17 wherein

    i. the step of analyzing further includes aggregating the functional data over time into statistical data that relates to the operations of the associated appliance,

    ii. the steps of transmitting further include polling from the gateway to request the statistical data and other data and transmitting the requested data to the center at predetermined times or when other transmissions are made to the center, and

    iii. the method further includes the step of including the statistical data in an analysis of the patterns of use and the operations of the appliances.

19. The method of claim 18 wherein the method further includes the steps of

    iv. determining if a given appliance should be replaced based on the analysis of patterns of use,

    v. recommending replacement appliance models that fit the associated pattern of use,

    vi. determining if the user of the given appliance has a replacement contract, and if so, arranging for the delivery and installation of the replacement appliance model selected by the user.

20. The method of claim 12 wherein the step of monitoring includes monitoring the energy consumption of one or more of the appliances.

21. The method of claim 20 wherein the step of monitoring includes monitoring the user-controlled settings of the associated appliances, the ambient environment and the states of various components of the appliances.

22. The method of claim 21 wherein the step of analyzing includes aggregating the functional data into historical data, and using the historical data in the analysis of the operations of the appliances.

23. The method of claim 22 further including the steps of

    i.   transmitting the functional data to the remote center;

    ii.   analysing the data at the remote center to determine if the one or more appliances are in need of attention.

24. A system for servicing household appliances, the system including:

    A. one or more monitoring subsystems associated with the one or more appliances, each monitoring subsystem

        i.   monitoring the operations of a given appliance and retaining as functional data information relating to the functioning of the appliance,

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7   ii.   analyzing the functional data and determining if the appliance

8   is operating properly or in need of attention, and

9   iii.   transmitting a message indicating that the appliance requires

10   attention and the associated data,

11   iv.   periodically transmitting the functional data,

12   E.   a c center for receiving the messages and the data sent by the

13   monitoring subsystems, the center analyzing the messages and the

14   data and contacting the users of the associated appliances to inform

15   them of the attention required by the appliances.

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1   25. The system of claim 24 wherein the center analyses the data from all of the

2   appliances in the same household to determine changes in operating environment and

3   uses the results in an analysis of the operations of the various appliance in the same

4   household.

1   26. The system of claim 24 wherein the center analyses the data from a given type

2   of appliance in the various households that report to the center and uses the results in an

3   analysis of the operations of that type of appliance in each of the households.